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ABSTRACT

A study was undertaken to assess the French second language proficiency of kindergarten students in two intensive French programs and to assess the development of mother tongue skills of native English speakers in a third program. The three subject groups were as follows: (1) students in a full-day immersion program; (2) francization (half-day) program students; and (3) students attending a regular English language kindergarten. The second group had two subgroups, those with English as a native language and those with other native languages. Listening comprehension and oral production tests were administered in French and the Canadian Test of Basic Skills was administered in English. Results show that: (1) the francization group scored higher than the immersion group on all French language tests; (2) French language skills were similar among both francization subgroups; (3) the francization group scored lower than both other groups on the English vocabulary and language tests (attributed to the ethnic diversity and sociolinguistic milieu of this group); and (4) all groups scored similarly on the English listening comprehension and mathematics tests. The document provides several tables and, in the appendices, explanations of statistical procedures as well as a set of pictures used in the oral production test. (MSE)

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AN EVALUATION OF THE FRANCIZATION PROGRAM IN KINDERGARTEN

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Instructional Services Department

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Résumé

Le but de cette étude était (1) d'évaluer les habilités langagières en français largue seconde des élèves de maternelle participant à deux différents programmmes de français intensif : un programme d'immersion primaire et un programme de francisation; (2) d'évaluer les habilités langagières en anglais des élèves du programme de francisation dont la langue maternelle est l'anglais.

Trois groupes d'élèves de maternelle ont participé à ce projet: (1) un groupe d'élèves du programme d'immersion primaire (groupe IMM), (2) un groupe d'élèves du programme de francisation (groupe FRAN) et (3) un groupe d'élèves du programme régulier du secteur anglais (groupe REG). Le groupe du programme de francisation a été sous-divisé en deux groupes. Le premier était composé d'élèves dont la langue maternelle était l'anglais (groupe FRAN 1) et le deuxième était composé d'élèves dont la langue maternelle n'était pas l'anglais (groupe FRAN 2).

Les habilités langagières en français ont été évaluées à l'aide des tests suivants: un test de compréhension auditive et un test d'expression orale. Les habilités langagières en anglais ont été évaluées à l'aide d'une série de tests d'anglais (Canadian Tests of Basic Skills).

Les résultats indiquent que: (1) le groupe FRAN a obtenu des résultats nettement supérieurs à ceux du groupe IMM aux tests de français; (2) il n'y avait pas de différences significatives aux tests de français entre le groupe FRAN 1 et le groupe FRAN 2; (3) le groupe FRAN 1 a obtenu des résultats nettement inférieurs à ceux des groupes REG et IMM à deux tests

d'anglais: vocabulaire et langage; (4) il n'y avait pas de différences significatives entre le groupe FRAN 1 et les groupes REG et IMM aux deux autres tests d'anglais: compréhension auditive et mathématiques.

Les résultats de cette étude nous mènent à conclure qu'au niveau de la maternelle, le programme de francisation favorise un développement plus rapide des habilités langagières en français que le programme d'immersion. La différence entre le groupe FRAN 1 et les groupes REG et IMM à certains tests d'anglais s'explique par la diversité des origines ethniques du groupe FRAN 1 et par les caractéristiques socio-linguistiques des quartiers où ces élèves demeurent.

Summary

The purpose of the present study was twofold: (1) to assess the second language proficiency in French of kindergarten students in two different intensive French programs: an early immersion program and a francization program; (2) to assess the development of mother tongue skills of native English speakers in the francization program.

Three groups of kindergarten students participated in this study: (1) a group of early immersion students (IMM group), (2) a group of students in the francization program (FRAN group) and (3) a group of students attending a regular English language kindergarten (REG group). The francization group was subdivided into two groups. The first group consisted of native-English speakers (FRAN 1) and the second one consisted of students whose mother tongue was not English (FRAN 2).

In French, the following tests were administered: a listening comprehension test and an oral production test. In English, the Canadian Tests of Basic Skills were administered.

The results show that (i) the FRAN group scored significantly higher than the IMM group on all the French language tests; (2) between the FRAN 1 group and the FRAN 2 group, there were no significant differences on the French language tests; (3) The FRAN 1 group scored significantly lower than the IMM and REG groups on two of the English tests: vocabulary and language; (4) there were no significant differences among the three groups on the other two English tests: listening comprehension and mathematics .

The results lead to the conclusion that the students in the francization program are more proficient in French than the students in the early immersion program at the kindergarten level. The difference in English proficiency between the FRAN 1 group and the REG and IMM groups is attributed to the diversity of ethnic backgrounds of the students in the FRAN 1 group and to the socio-linguistic character of the milieu in which these students live.

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Over the past decade, anglophone parents in Montreal have increasingly searched for educational opportunities that would enable their children to become fluent in French. For some, the various immersion programs offer a viable answer. Others, though few in number, enroll their children in regular French schools. When the P.S.B.G.M. instituted its "welcoming class program" for immigrant children, many of the anglophone parents chose this alternative for their children. The welcoming class program at the kindergarten level, which is a full-day program, was especially attractive for two reasons. First, it offers more exposure to French than the immersion kindergarten which is a half-day program. Second, in contrast to the regular French kindergarten, the welcoming class program does not plunge the child into an environment where he or she may initially feel threatened because he or she is the only one in the class who cannot communicate freely in French.

In 1981, new government regulations stipulated that the full-day welcoming classes were open only to children of non-francophone parents who have been residing in Quebec for less than five years. That same year, the P.S.B.G.M. instituted a new French second language program at the kindergarten level. This program, referred to as the "francization program", is open to all non-francophone children whose parents have resided in Quebec for over five years.

The francization program uses the same approach to second language teaching as the welcoming class program. It is, however, only a half-day program, so that there is much less exposure to French here than in the

welcoming class program. In fact, in terms of instructional time, the francization program is identical to the early immersion program in kindergarten. On the other hand, the linguistic and socio-cultural background of the student population differs in the two programs. In the immersion program, practically all the children are anglophone Quebecers and, although they are encouraged to communicate in French with the teacher, English is the natural language of communication among the children themselves. In the francization program, the number of anglophone Quebecers is relatively small. Here the majority of the children come from different ethnic backgrounds. Most of these children speak some English, but only few speak it as their mother tongue. Moreover, some of the children do not speak any English at all. In consequence, the use of English among the children themselves may be less frequent here than in the immersion classroom. The lack of a native tongue common to all the children in the classroom may also hasten the use of French as a means of communication among peers.

The Study

The purpose of the present study is twofold: (1) to investigate whether the level of French proficiency attained at the end of one year in kindergarten is higher in the francization program than in the early immersion program and (2) to see whether participation in a francization program has a significant effect on the development of English (mother

tongue) skills.

Method

The Samples

Three groups of students participated in this study: (1) a group of students attending a francization kindergarten (hereafter FRAN group), (2) a group of students attending an early immersion kindergarten (hereafter IMM group) and (3) a group of students attending a regular English language kindergarten (hereafter REG group) – for exact sample sizes and participating schools see Tables 1A and 1C.

The FRAN group included all the kindergarten classes of the P.S.B.G.M. in which the francization program was taught. Within the FRAN group, the students were divided into two subgroups: (1) native-English speakers (hereafter FRAN 1) and (2) non-native-English speakers (hereafter FRAN 2). The FRAN 1 group included children whose parents were anglophone Quebecers and children whose parents came from countries where English is either the national language or the main language spoken in that country. The FRAN 2 group consisted of children with different mother tongues. None of these children spoke French at home (for exact sample sizes see Table 1B).

The IMM group and the REG group consisted of children whose mother tongue was English. The children in the REG group were not tested in French since these children had had only very little classroom exposure to French.

Most of the students in the three groups came from middle to lower

socio-economic class homes. The range of the children's socio-economic backgrounds was, however, much broader in the FRAN group than in the other two groups.

In order to control as much as possible the effect of differences in mental capacity that could exist between the groups, all the students were administered the Coloured Progressive Matrices Test (revised order, Raven, 1956).

The Tests

Two batteries of tests were administered: (1) a battery of French tests and (2) a battery of English tests.

(1) The French Test Battery

The following French language tests were administered: (i) a listening comprehension test, (ii) a directed oral production test and (iii) a free oral production test.

(i) The Listening Comprehension Test

This test was adapted from the French comprehension test developed by the Ontario Institute for Studies in Education (Barik, 1977). The test consists of three parts. In part I, the students had to select the picture that corresponded to a word or sentence presented orally. In part 2, the students had to select the picture that answered a question presented orally. In part 3, short stories were read orally. Each story was followed by a number of questions also presented orally. For each question, the student had to select the picture that represented the correct answer.

In each case, the correct picture had to be chosen from four alternatives. In all, the test comprises 40 items. Each part was scored separately and the scores of the three parts were then added together for each student. Both the total scores and the scores of each subtest were considered in the analysis of the results.

(ii) The Directed Oral Production Test

This test is a French version of the Bilingual Syntax Measure (Burt, Dulay and Hernandez, 1974). The test is designed to measure oral proficiency and particularly structural proficiency in the second language. The French version is an experimental one and has been used by Beautier-Castaing (1976) to study the acquisition of French grammar by young children of different linguistic backgrounds residing in France. The test consists of 34 grammatical structures which are elicited through short simple questions used in conjunction with four sets of cartoon-type pictures. In the present study the students' responses were scored as either correct or incorrect. Incorrect responses were classified as either (1) grammatically incorrect, (2) semantically incorrect or (3) no response. This last category included responses given in a language other than French.

(iii) The Free Oral Production Test

This test was developed by the Research Department of the P.S.B.G.M. It consists of two sets of pictures. The pictures were constructed so as to elicit syntactic units containing subject-verb and subject-verb-object relationships. Each set of pictures depicted a story (see Appen-

dix IV).The students were asked to narrate what they saw in the pictures. In the case of the first set, the students were asked a question about each picture. The other set was introduced by starting the story and asking the students to continue. If a student did not complete the story he was urged on by questions such as "et qu'est-ce qui se passe ici?" (and what is happening here?).

To assess the students' proficiency in oral production three different measures of evaluation were used. First, each student's speech sample was evaluated by two raters, working independently, on four different dimensions: pronunciation, grammar, vocabulary and communication. The ratings ranged from a maximum of 5, indicating native-like skill, to a minimum of 1, indicating very poor skill. The evaluations of both raters were combined to form an average score for each dimension. Second, a more objective evaluation of the quantitative and qualitative performance of the students' speech samples was provided by using the T-unit as a basis of evaluation. A T-unit has been defined as "a main clause plus all subordinate clauses and non-clausal structures attached to or embedded in it" (Hunt, 1970:4). The T-unit has been suggested as a measure of second language development (Larsen-Freeman and Strom 1977) and has been used to assess oral and written speech samples of second language learners (Scott and Tucker 1974). In the present study, four measures related to the T-unit were used: (i) the number of T-units produced,(ii) the mean length of a T-unit,(iii) the percentage of correct T-units produced and (iv) the mean length of a correct T-unit.

(i) The number of T-units

The number of T-units produced by each student was counted and a mean was then calculated for each group and subgroup (IMM, FRAN, FRAN 1 and FRAN 2).

(ii) The mean length of a T-unit

The mean length of a T-unit was calculated by counting the number of words produced by each student and dividing it by the number of T-units produced by that student. Means were then established for each group and subgroup.

(iii) The percentage of correct T-units

The number of correct T-units produced by each student was counted and a ratio was established between the number of correct T-units and the total number of T-units produced by that student. Here again, a mean ratio was computed for each group and subgroup.

(iv) The mean length of a correct T-unit

The number of words of all the error-free T-units produced by a student was counted and divided by the number of error-free T-units produced by that student. Here, too, means were established for each group and subgroup.

(2) The English Test Battery

For the assessment of English language skills, the Canadian Tests of Basic Skills (CTBS), Primary Battery, Level 5 (Nelson, 1981) was used. The test comprises five subtests: listening, vocabulary, word-analysis,

language and mathematics. The word-analysis test was, however, not administered since it requires knowledge of the English alphabet to which neither the IMM children nor the FRAN children have had any exposure.

Each subtests consists of a number of items (31 for listening comprehension, 29 for vocabulary, 29 for language and 33 for mathematics) with multiple-choice answers. The answers are presented in picture form. For each item, the students hear a stimulus statement or question and respond by making a pencil mark below the appropriate picture.

Procedure for Administering the Tests

The tests were administered in May and June 1983. All the tests, except the French oral production tests, were group administered. Each testing session lasted 30-40 minutes. The oral production test was administered individually and lasted 10 to 15 minutes per student. The entire session was tape recorded. Because of the lengthy procedure involved in individual testing, only about fifty percent of the students tested in French were tested orally.

The French tests were administered by native-French speakers and the English tests were administered by native-English speakers. The instructions for the French tests were given in English to the immersion students and in English and French to the francization classes. The instructions for the English tests were given only in English. In all cases, the tester made sure that all the students had understood the instructions.

As noted above, the French tests were administered only to the IMM

group and the FRAN group. The English tests were administered to the IMM group, the REG group and to those students in the FRAN group who were sufficiently fluent in English to follow instructions. However, in the analysis of the English data only the test results of the native-English speakers were retained.

Results

The students' scores on the Coloured Progressive Matrices Test were analyzed first, using a one-way analysis of variance procedure. The main variable was group membership (REG, IMM and FRAN). The results of this analysis reveal significant differences between two of the three groups ($F = 3.98$, $p < .05$) since these differences could influence the results of the other tests, the latter were analyzed by using an analysis of covariance procedure (see Appendix 1 for a short explanation). Separate analyses were carried out for each test and subtest. Whenever the comparisons pertained to more than two groups, (see CTBS results) a Newman Keuls procedure of multiple comparisons was used to determine which groups differed significantly from one another. The results of all these analyses are summarized in Table 2 (French test results) and Table 3 (CTBS results). All means shown in these tables are means adjusted for group differences on the Raven Matrices test scores. Moreover, in the case of one subtest (percentage of correct T-units), the raw scores were converted into arcsin ratios ($y = 2 \arcsin\sqrt{x}$) and the means shown in the tables for

this variable are based on the transformed scores. For more meaningful interpretation of these results, the percentages are presented in parentheses above the transformed scores.

In addition to the above analyses, the CTBS scores were converted into grade equivalents and stanine scores in order to compare the performance of the native speakers to that of other English speaking Canadians at the kindergarten level (for a brief explanation of these procedures see Appendix II and Appendix III). The results of these computations are summarized in Table 5.

1. The French Test Results

As noted above, the French tests were not administered to the REG group. In consequence, all the results presented here pertain to the comparison between the FRAN group and the IMM group.

(i) The Listening Comprehension Test

The results of the listening comprehension test reveal that the FRAN group ($\bar{X}$=16.81) scored significantly higher than the IMM group ($\bar{X}$=9.49) on the total score of this test. The analysis of the three subtests shows that the difference between the groups was much more pronounced on subtest I (FRAN, $\bar{X}$=9.93; IMM, $\bar{X}$=4.51) than on subtest II (FRAN, $\bar{X}$=3.28, IMM, $\bar{X}$=2.30) and on subtest III (FRAN, $\bar{X}$=3.63; IMM, $\bar{X}$=2.69). The differences were, however, significant on all three subtests.

(ii) The Directed Oral Production Test

In this test, the FRAN group ($\bar{X}$=8.41) produced significantly

more correct responses than the IMM group ($\bar{X}$ = 3.18). The analysis of the incorrect responses reveals that the FRAN group ($\bar{X}$ = 10.78) produced significantly fewer insufficient responses than the IMM group ($\bar{X}$ = 22.54). On the other hand, the IMM group ($\bar{X}$ = 6.69) produced significantly fewer grammatically incorrect responses than the FRAN group ($\bar{X}$ = 12.85). Both groups produced only very few semantically incorrect responses and the difference between the groups was not significant on this variable FRAN,($\bar{X}$ = 1.76; IMM, $\bar{X}$ = 1.60).

(iii) The Free Oral Production Test

The results of the global evaluation of the free oral production test show that on all four rating scales (pronunciation, grammar, vocabulary and communication), the FRAN group was rated significantly higher than the IMM group (for details of the numerical values see Table 2).

The results pertaining to the T-unit analysis indicate that the FRAN group ($\bar{X}$ = 11.19) produced significantly more T-units than the IMM group ($\bar{X}$ = 4.13). The units produced by the FRAN group were also significantly longer ($\bar{X}$ = 3.61) than those produced by the IMM group ($\bar{X}$ = 2.06). Similarly, the percentage of correct T-units produced by the FRAN group (43%) was significantly higher than the percentage of correct T-units produced by the IMM group (12%). Finally, the correct T-units produced by the FRAN group were more than twice as long ($\bar{X}$ = 3.31) as those produced by the IMM group ($\bar{X}$ = 1.58).

Comparison of the Native-English and Non-Native-English Speakers in the FRAN Group

The results of the comparison between the native-English speakers

(FRAN 1 group) and the non-native-English speakers (FRAN 2 group) in the francization program reveal no significant differences between these two groups on any of the French language tests. Numerically, the FRAN 2 group ($\bar{X}$ = 15.98) scored slightly higher on the listening comprehension test than the FRAN 1 group ($\bar{X}$ = 15.36). On the other hand, the FRAN 1 group ($\bar{X}$ = 9.16) produced slightly more correct responses on the directed oral production test than the FRAN 2 group ($\bar{X}$ = 7.75). On the free oral production test, the FRAN 1 group was rated slightly higher than the FRAN 2 group in pronunciation, grammar and vocabulary. The FRAN 1 group also produced slightly longer T-units and a higher percentage of correct T-units than the FRAN 2 group.

2. The English Test Results

As noted above, only the CTBS results of native-English speakers were analyzed. Thus the three participating groups were FRAN 1, REG and IMM.

The results of the listening comprehension test show no significant differences among the three groups. Numerically, the groups ranked as follows: REG ($\bar{X}$ = 22.37), FRAN 1 ($\bar{X}$ = 22.04) and IMM ($\bar{X}$ = 21.78).

On the vocabulary test, the FRAN 1 group ($\bar{X}$ = 17.97) scored significantly lower than the REG group ($\bar{X}$ = 22.06) and the IMM group ($\bar{X}$ = 21.78). Between the latter two groups, there was no significant difference.

The FRAN 1 group ($\bar{X}$ = 21.57) also scored significantly lower than the REG group ($\bar{X}$ = 24.54) and the IMM group ($\bar{X}$ = 25.09) on the language test. Here again, the difference between the REG group and the IMM group

was not significant.

Finally, there were no significant differences among the three groups on the mathematics test (FRAN 1, $\bar{X} = 18.96$; REG, $\bar{X} = 18.94$, IMM, $\bar{X} = 19.82$). It should be noted that this test was not administered to one of the IMM classes.

In terms of grade equivalents, the scores of the FRAN 1 group ranged from a low of K4 (mathematics) to a high of K9 (listening comprehension). The scores of the REG group were similar to those of the FRAN 1 group in listening comprehension and mathematics but not in vocabulary (FRAN 1 = K6, REG = 10) and in language (FRAN 1 = K7, REG = 12). The scores of the IMM group were higher than those of the other two groups and ranged from a low of K5 (mathematics) to a high of 16 (language).

The stanine scores show that all three groups scored within the average range of the scale except in the following cases: both the FRAN 1 group and the REG group scored below average in mathematics and the IMM group scored above average in language.

In order to see whether the heterogenous ethno-cultural character of the FRAN 1 group had any influence on the English test results, it was decided to examine the test results of a subgroup of FRAN students (FRAN 3) who came from an socio-cultural background similar to that of the students in the REG and IMM group. Since only one of the francization kindergartens had a student population consisting predominantly of anglophone Quebecers, the number of students in the FRAN 3 group was very small (seven students). In consequence, the test results of this group were

not analyzed statistically. An informal comparison between the FRAN 3 group and the IMM group (Table 5B) reveals that the performance of the two groups was similar on the language test (grade equivalent 16) and on the mathematics test (grade equivalent K5). On the listening comprehension test (FRAN 3, grade equivalent 13; IMM, grade equivalent K8) and on the vocabulary test (FRAN 3, grade equivalent 12; IMM, grade equivalent 12; IMM, grade equivalent K9), the FRAN 3 group scored much higher than the IMM group. Furthermore, the stanine scores show that the FRAN 3 group ranked within the "above average" range of the scale on three of the four tests (listening comprehension, vocabulary and language).

Summary and Discussion

The results of this study can be summarized as follows:

(1) The FRAN group scored significantly higher than the IMM group on all the French language tests except for the number of grammatically and semantically incorrect answers.

(2) Within the FRAN group, there were no significant differences between the FRAN 1 group and the FRAN 2 group on any of the French language tests.

(3) The FRAN 1 group scored significantly lower than the REG and IMM groups on two of the English tests: vocabulary and language. There were no significant differences among the three groups on the other two English tests: listening comprehension and mathematics.

(4) The three groups scored within the average range of the stanine scale except in the following cases: the FRAN 1 group and the REG group scored below average on the mathematics test and the IMM group scored above average on the language test.

(5) The FRAN 3 group scored above average on all the English tests except mathematics where it scored within the average range of the stanine scale.

Several noteworthy findings emerge from this study. First, the students in the francization program were much more proficient in French than the students in the immersion program. The difference between the two groups is most pronounced in oral production. In fact, the IMM students had great difficulty in expressing themselves and very often responded in English. Interestingly, the FRAN students made more grammatical errors on the directed oral production test than the IMM students. Closer examination of the data reveals that the FRAN students made significantly more attempts to respond in French than the IMM students, hence, they created more opportunities for errors to occur. These findings seem to reflect the classroom situation in each program. As noted in the introduction, the immersion students are not required the communicate in French at the kindergarten level, whereas the francization students must speak French at least to the teacher and to those students with whom they do not share any other common language. The finding that th were no significant differences between the native-English speakers and the non-native-English speakers suggests that English is not used exten-

sively for peer communication in the francization classroom even though many of the non-native-English students can speak English.

Second, the development of the mother tongue skills of the native English speakers in the francization program is not as uniform as that of the students in the other two programs. Thus, while there are no differences among the three groups in listening comprehension and in mathematics, the FRAN 1 students' vocabulary and language skills are less developed than those of the other two groups. These differences cannot be attributed directly to the effect of the francization program, since English language skills are also not developed in the immersion kindergarten. It is more likely that both the ethno-cultural background of the FRAN 1 children and the socio-linguistic milieu in which they live affect the development of their English language skills. In fact, this study suggests that when students in francization classes are matched with immersion students on these variables, the francization students' performance on the English tests is as good as, and, in some cases, better than that of the immersion students. These conclusions must, however, be accepted cautiously because of the extremely small number of francization students involved in this last comparison. Testing of a number of years would be advisable in order to see whether the above findings are consistent.

It is noteworthy that, in terms of grade equivalents, the three groups were on a lower level in mathematics than in the other skills tested in English. Here again, the results cannot be attributed to either

of the two French programs since the performance of the students in the regular English kindergarten was also low. Closer examination of the content of the mathematics test reveals that many of the items refer to spatial relationships. It is possible that these concepts were not yet well internalized by the students in this particular sample. It is also possible that the wording of the questions relating to number problems was unfamiliar to the students. Here too, the results suggest that the development of the mathematics skills of the students in the elementary grades of the English sector of the P.S.B.G.M. should be followed closely.

In conclusion, this study indicates that students participating in a francization program develop greater proficiency in French than their peers in the early immersion program. Moreover, the mother-tongue skills of anglophone Quebecers in francization programs seem to be as developed as those of English students in regular and immersion programs. On the other hand, native-English students from different ethno-cultural backgrounds may not be as proficient in English because the milieu in which they live does not offer the same opportunities for the development of English language skills.

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Table 1A

Sample Sizes According to Program

Francization program (FRAN)	91
Immersion program (IMM)	38
Regular program (REG)	16

Table 1B

Sample Sizes of English-Speaking and non-English-Speaking Students in Francization Classes

Native English Speakers (FRAN 1)	34
Non-native English Speakers (FRAN 2)	57

Table 1C

Participating Schools

Keith	Algonquin	Ogilvie	Ahuntsic
Riverview	Edouard VII	Willowdale	Iona

Table 2

Summary of French Test Results According to Program

(1) Listening Comprehension

	IMM	FRAN	F ratio	df
Total correct (40)[a]	9.49	16.81	56.44***	1,122
- subtest I (22)	4.51	9.93	83.38***	1,122
- subtest II (9)	2.30	3.28	11.27***	1,122
- subtest III (9)	2.69	3.63	6.25*	1,122

* $p < .05$

*** $p < .001$

[a] Maximum scores in parentheses.

Table 2 (cont'd)

Summary of French Test Results According to Program

(2) Directed Oral Production (34)[a]

	IMM	FRAN	F ratio	df
Correct responses	3.18	8.41	17.28***	1,66
Incorrect responses				
(i) grammatically	6.69	12.85	22.93***	1,66
(ii) semantically	1.60	1.76	0.34	1,66
(iii) insufficient resp.	22.54	10.78	34.54***	1,66

*** $p < .001$

[a] 34 items distributed according to 4 measures of evaluation.

Table 2 (cont'd)

Summary of French Test Results According to Program

(3) Free Oral Production

	IMM	FRAN	F ratio	df
Global Evaluation				
- pronunciation (5)[a]	1.43	2.71	39.66***	1,56
- grammar (5)	0.41	2.37	93.84***	1,56
- vocabulary (5)	0.91	2.44	46.33***	1,56
- communication (5)	1.26	2.64	31.51***	1,56
T-units				
- total number	4.13	11.19	19.60***	1,53
- mean length	2.06	3.61	19.33***	1,53
- percentage correct	(12%) 0.70	(43%) 1.44	21.79***	1,53
- mean length of correct T-unit	1.58	3.31	14.99***	1,53

*** $p < .001$

[a]Maximum scores in parentheses.

ES

Table 3

Summary of French Test Results of the Francization Program According to Mother Tongue

(1) Listening Comprehension

	FRAN 1	FRAN 2	F ratio	df
Total correct (40)[a]	15.36	15.98	3.22	1,86
- subtest I (22)	9.23	9.53	1.87	1,86
- subtest II (9)	2.84	3.03	3.66	1,86
- subtest III (9)	3.28	3.43	1.38	1,86

[a]Maximum scores in parentheses.

Table 3 (cont'd)

Summary of French Test Results of the Francization Program According to Mother Tongue

(2) Directed Oral Production (34)[a]

	FRAN 1	FRAN 2	F ratio	df
Correct responses	9.16	7.75	1.02	1,49
Incorrect responses				
(i) grammatically	13.05	12.68	0.07	1,49
(ii) semantically	1.85	1.98	0.05	1,49
(iii) insufficient resp.	10.00	11.47	0.49	1,49

[a]34 items distributed according to four measures of evaluation.

Table 3 (cont'd)

Summary of French Test Results of the Francization Program According to Mother Tongue

(3) Free Oral Production

	FRAN 1	FRAN 2	F ratio	df
Global Evaluation				
- pronunciation (5)[a]	2.71	2.70	0.01	1,39
- grammar (5)	2.58	2.21	2.65	1,39
- vocabulary (5)	2.60	2.32	1.14	1,39
- communication (5)	2.59	2.66	0.07	1,39
T-units				
- total number	10.92	11.41	0.05	1,36
- mean length	3.68	3.54	0.17	1,36
- percentage correct	(46%) 1.49	(41%) 1.38	0.62	1,36
- mean length of correct	3.21	3.37	0.14	1,36

[a]Maximum score in parentheses.

Table 4

Summary of CTBS Results of Native-English Speakers According to Program[a]

	FRAN 1	REG	IMM	F ratio	df
Listening Comprehension (31)[b]	22.04	22.37	21.17	0.84	2,74
Vocabulary (29)	17.97	22.06	21.78	5.63**	2,75
Language (29)	21.57	24.54	25.09	10.77***	2,79
Mathematics (33)	18.96	18.94	19.82	0.52	2,54

** $p < .01$

*** $p < .001$

[a]Means joined by a line differ significantly from one another.

[b]Maximum scores in parentheses.

Table 5A

Grade Equivalent and Stanine Scores for CTBS Results According to Program

	FRAN 1		REG		IMM	
	GE	ST	GE	ST	GE	ST
Listening Comprehension	K9	5	K9	5	K8	5
Vocabulary	K6	4	10	6	K9	5
Language	K7	5	12	6	16	7
Mathematics	K4	3	K4	3	K5	4

Table 5B

Comparison Between CTBS Results of Francization Class in English Milieu and Immersion Group

	FRAN 3		IMM	
	GE	ST	GE	ST
Listening Comprehension	13	7	K8	5
Vocabulary	12	7	K9	5
Language	16	7	16	7
Mathematics	K5	4	K5	4

Appendix I

Explanation of Analysis of Covariance

Analysis of covariance is a statistical procedure which is similar to the analysis of variance in that it is used to compare the results of two or more groups on a particular test. At the same time, analysis of covariance mathematically reduces the influence that another variable, such as I.Q., might have on the test results. For example, if two hypothetical language groups under investigation differ *a priori* in terms of I.Q., and if it is believed that I.Q., will significantly influence performance on the test being administered (e.g., a reading test), then an analysis of covariance will estimate the significance of the language factor. This mathematical procedure is used when it is difficult or impossible to select groups which are equivalent in I.Q..

Appendix II

Explanation of Grade Equivalents

The grade equivalent of a given raw score on any test indicates the grade level at which the typical pupil makes this raw score. In scores between 31 and 81, the first digit represents the grade and the second digit the month within the grade in which the typical pupil makes the corresponding raw score. Strictly speaking, the second digit represents tenths of a year's difference between grade medians for successive years. For example, if a pupil makes a grade equivalent of 57, this means that the raw score on the test is the same as that made by the typical or median pupil in grade five at the end of the seventh month.

Grade equivalents below 18 should not be interpreted litterally as indicating grade and month. They were derived statistically on the assumption that pupils grow in the skills measured at the same rate below the eighth month of Grade 1 as they do after this time. This assumption is not strictly valid since developmental patterns vary considerably among younger students. However, the scale was so extended in order to give an estimate of the developmental level of pupils scoring in these ranges of achievement.

The grade equivalent of an entire group is a mean based on the individual grade equivalents of all the students in that group.

Appendix III

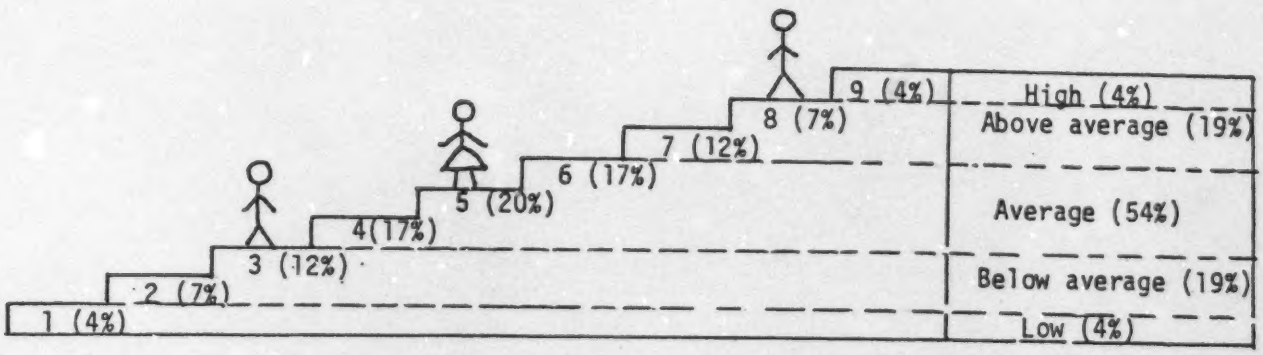
Interpretation of Stanine Scores

Stanine

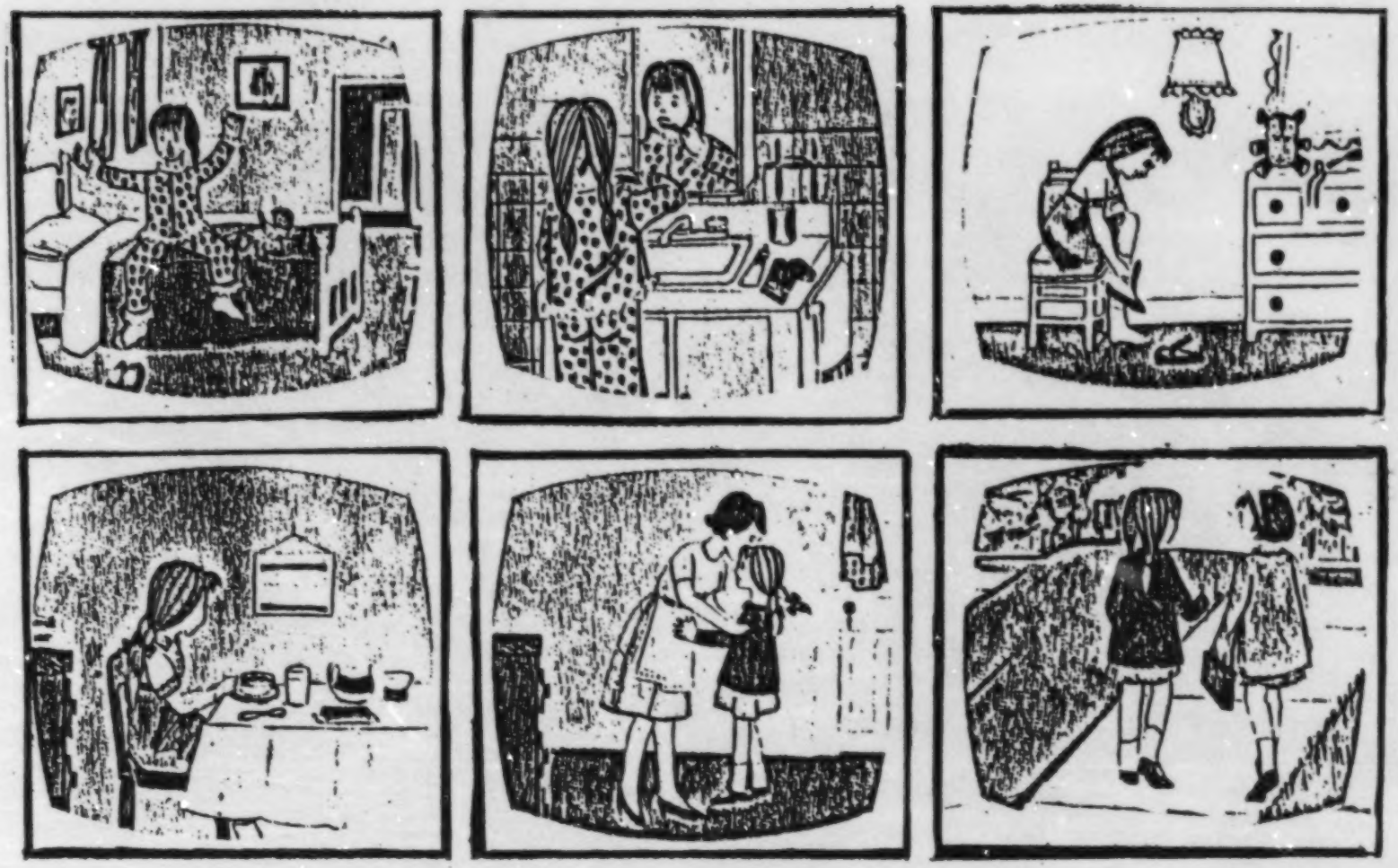
The stanine scale is a simple nine-point scale of standard scores. (The word stanine was derived from STAndard NINE-Point scale). In this scale, raw scores are converted to scores which range from 1 (low) to 9 (high) with a mean of 5 and a standard deviation of 2.

Figure 1. Percentage of Cases at Each Stanine Level.

Meaning of Stanines
STA: Standard Score: NINE: Nine Step Scale



Appendix IV



SET I

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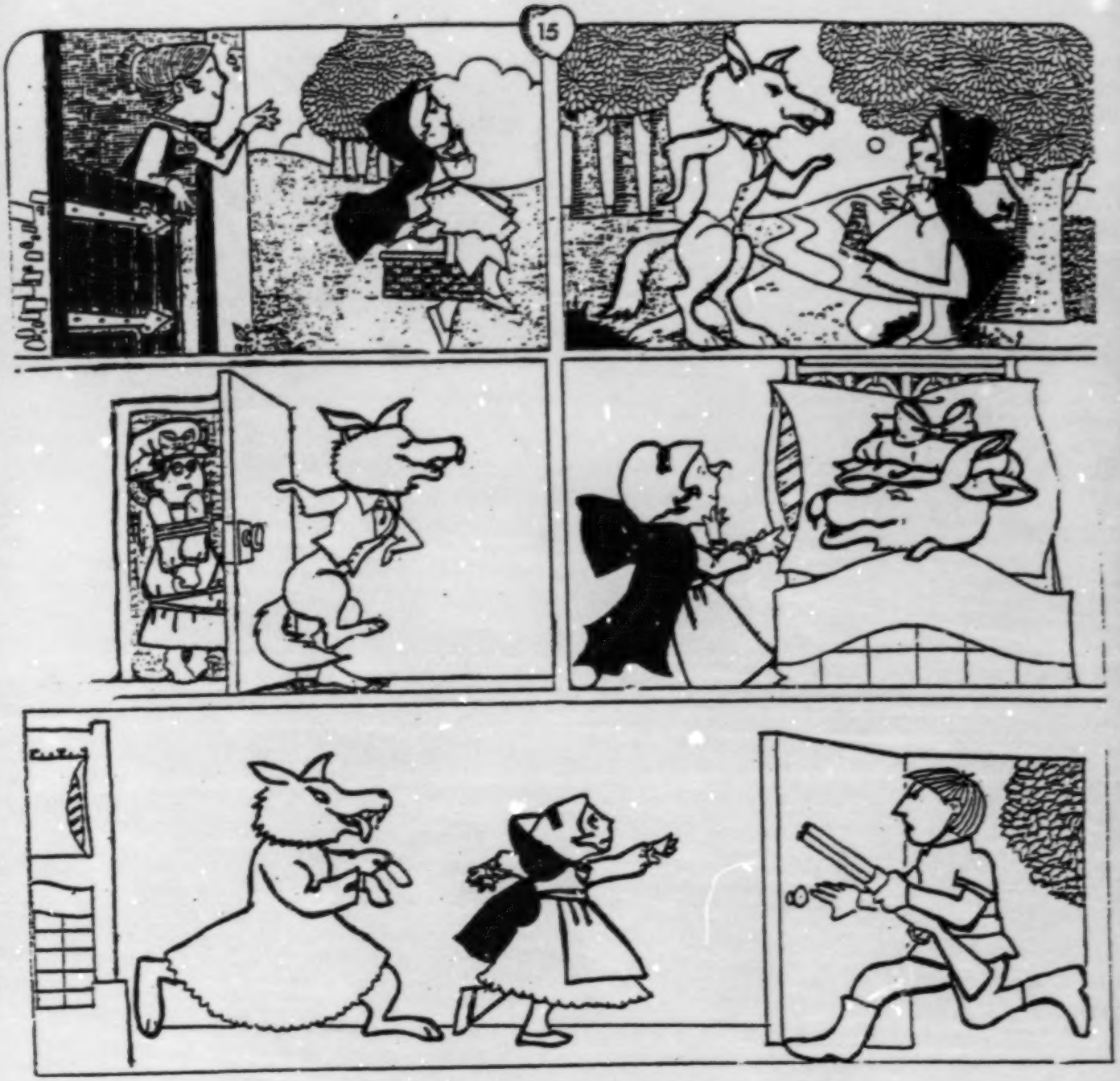
42



SET II